

CLAIM AMENDMENTS:

Pending Claims

Claim 1 (Original): A method of manufacture comprising the following steps:

intermittently advancing a first elongated continuous structure made of flexible material along a process pathway that passes through a joining station, each advance of said first elongated continuous structure being substantially the same distance;

after each advancement of said first elongated continuous structure, joining a respective portion of a second elongated continuous structure made of flexible material to a respective portion of said first elongated continuous structure at said joining station while said respective portions are stationary; and

applying a torque to a roller in contact with said second elongated continuous structure at a nip located upstream of said joining station, the applied torque being directed opposite to a load torque exerted on said roller by said second elongated continuous structure when the latter is pulled along said process pathway by said advancing first elongated continuous structure joined thereto, the applied torque having a magnitude sufficient to produce a desired tension in the portion of said second elongated continuous structure disposed between said nip and said joining station.

Claim 2 (Original): The method as recited in claim 1, wherein for the applied torque is substantially constant during a work cycle.

Claim 3 (Original): The method as recited in claim 1, wherein said first elongated continuous structure comprises a web of packaging film while said second elongated continuous

structure comprises a plastic zipper strip.

Claim 4 (Original): The method as recited in claim 1, further comprising the step of deforming a part of the tensioned portion of said second elongated continuous structure while the tensioned portion is stationary.

Claim 5 (Original): The method as recited in claim 1, further comprising the step of inserting an article on a part of the tensioned portion of said second elongated continuous structure while the tensioned portion is stationary.

Claim 6 (Original): The method as recited in claim 1, further comprising the step of thermoforming a respective section of said first elongated continuous structure to form a respective pocket before that section is joined to said second elongated continuous structure.

Claims 7-15 (Canceled).

Claim 16 (Original): An apparatus comprising:

a joining station comprising means for joining a respective portion of a first elongated continuous structure made of flexible material to a respective portion of a second elongated continuous structure made of flexible material;

means for intermittently advancing said first elongated continuous structure along a first process pathway that passes through said joining station, each advance of said first elongated continuous structure being substantially the same distance and being separated in time by a dwell time, said joining means being operative during each dwell time;

first and second rollers forming a nip upstream of said joining station;

means for guiding said second elongated continuous structure along a second process pathway, said second process pathway passing through said nip and said joining station, said first and second process pathways being mutually parallel downstream of said joining station; and

a torque control device for applying an output torque to said first roller in a direction opposite to the direction of a load torque exerted on said first roller when said second elongated continuous structure is being pulled by said advancing first elongated continuous structure, the output torque having a magnitude sufficient to produce a desired tension in that portion of said second elongated continuous structure disposed between said nip and said joining station.

Claim 17 (Original): The apparatus as recited in claim 16, wherein the output torque is substantially constant during a work cycle.

Claim 18 (Original): The apparatus as recited in claim 16, wherein said first elongated continuous structure comprises a web of packaging film while said second elongated continuous structure comprises a first zipper strip.

Claim 19 (Original): The apparatus as recited in claim 16, wherein said torque control device comprises a magnetic particle clutch.

Claim 20 (Currently Amended): The apparatus as recited in claim [[20]] 16, wherein said torque control device comprises an input shaft, an output shaft, and means for coupling said output shaft to said input shaft, said coupling means causing said output shaft to slip relative to said input shaft when a load torque on said output shaft exceeds an oppositely directed output torque being applied to said output shaft.

Claim 21 (Original): The apparatus as recited in claim 20, further comprising an accumulator that accumulates portions of said second elongated continuous structure disposed between said nip and said joining station while said first elongated continuous structure is stationary.

Claim 22 (Original): The apparatus as recited in claim 22, wherein said first zipper strip is interlocked with a second zipper strip, further comprising an ultrasonic welding assembly that fuses and deforms respective portions of said first and second zipper strips that have passed through said nip.

Claim 23 (Original): The apparatus as recited in claim 22, further comprising a slider insertion device for inserting a respective slider on a respective undeformed section of said interlocked first and second zipper strips.

Claim 24 (Original): The apparatus as recited in claim 20, further comprising a thermoforming die for thermoforming a respective section of said first elongated continuous structure into a respective pocket before that section is joined to said second elongated continuous structure.

Claim 25 (Original): A method for controlling tension in a continuous zipper material being fed to a packaging machine, comprising:

pulling the zipper material through a nip formed by first and second rollers and in a direction toward the packaging machine; and

applying a substantially constant torque to said first roller that is opposite in direction to a load torque applied to said first roller by the nipped portion of the zipper material when the latter is pulled through said nip and toward the packaging machine.

Claim 26 (Original): The method as recited in claim 25, further comprising the step of deforming a first part of the zipper material between the nip and the packaging machine while the zipper material is stationary.

Claim 27 (Original): The method as recited in claim 26, further comprising the step of inserting a slider on a second part of the zipper material while the zipper material is stationary.

Claim 28 (Original): A method of manufacture comprising the following steps:

joining a portion of a first elongated continuous structure made of flexible material to a portion of a second elongated continuous structure made of flexible material during a first portion of a work cycle, said second elongated continuous structure having a trailing portion that passes through a nip formed by first and second rollers;

pulling said trailing portion of said second elongated continuous structure through said nip by advancing said joined portion of said first continuous forward during a second portion of said work cycle; and

applying an output torque to one of said rollers during said first and second portions of said work cycle, said output torque being directed opposite to a load torque exerted on said one roller when said trailing portion of said second elongated continuous structure is pulled through said nip.

Claim 29 (Original): The method as recited in claim 28, wherein said first elongated continuous structure comprises a web of packaging film while said second elongated continuous structure comprises a plastic zipper strip.

Claim 30 (Original): A system comprising a packaging machine, a zipper processing machine, and a continuous zipper

material that follows a process pathway through said zipper processing machine and then through said packaging machine, wherein:

said continuous zipper material comprises a first continuous zipper strip interlocked with a second continuous zipper strip;

said packaging machine comprises a joining station whereat a portion of said first zipper strip is joined to a portion of a continuous packaging material during a first portion of a work cycle, and means for advancing said continuous packaging material during a second portion of said work cycle; and

said zipper processing machine comprises a nip formed by first and second rollers, said first and second zipper strips passing through said nip, and a torque control device operatively coupled to said first roller for applying an output torque to said first roller during said first and second portions of said work cycle, said output torque being directed opposite to a load torque exerted on said first roller when said first and second zipper strips are pulled through said nip.

Claim 31 (Original): The system as recited in claim 30, wherein said packaging machine comprises a thermoforming die disposed upstream of said joining station for forming a pocket in said packaging material, said zipper material being later joined to said packaging material outside said pocket.

Claim 32 (Currently Amended): The ~~apparatus~~ system as recited in claim 30, wherein said torque control device comprises a magnetic particle clutch.

Claim 33 (Currently Amended): The ~~apparatus~~ system as recited in claim 30, wherein said torque control device comprises an input shaft, an output shaft, and means for

coupling said output shaft to said input shaft, said coupling means causing said output shaft to slip relative to said input shaft when a load torque on said output shaft exceeds an oppositely directed output torque being applied to said output shaft.

Claim 34 (Currently Amended): The ~~apparatus~~ system as recited in claim 30, further comprising an accumulator that accumulates portions of said continuous zipper material that pass through said nip while said continuous packaging material is stationary.

Claim 35 (Currently Amended): The ~~apparatus~~ system as recited in claim 30, further comprising an ultrasonic welding assembly that fuses and deforms respective portions of said first and second zipper strips that have passed through said nip.

Claim 36 (Currently Amended): The ~~apparatus~~ system as recited in claim 35, further comprising a slider insertion device for inserting a respective slider on a respective undeformed section of said interlocked first and second zipper strips.

Claim 37 (Original): A system comprising a packaging machine, a zipper processing machine, and a continuous zipper material that follows a process pathway through said zipper processing machine and then through said packaging machine, wherein:

said continuous zipper material comprises a first continuous zipper strip interlocked with a second continuous zipper strip;

said packaging machine comprises a joining station whereat a portion of said first zipper strip is joined to a portion of a continuous packaging material during a first

portion of a work cycle, and means for advancing said continuous packaging material during a second portion of said work cycle; and

said zipper processing machine comprises a slider insertion device and tension control means for maintaining a substantially constant tension of said zipper material in a zone from said slider insertion device to said joining station during said first portion of each work cycle.

Claim 38 (Original): The system as recited in claim 37, wherein said tension control means comprise a dancer assembly.

Claim 39 (Original): The system as recited in claim 37, wherein said tension control means comprise a pair of rollers forming a nip and a torque control device coupled to one of said rollers.

Claim 40 (New): An apparatus comprising:

a joining station comprising means for joining a respective portion of a first elongated continuous structure made of flexible material to a respective portion of a second elongated continuous structure made of flexible material;

a movable pulling mechanism that applies pressure for holding said first elongated continuous structure at a position downstream of said joining station, said pulling mechanism being intermittently movable for pulling said first elongated continuous structure along a first process pathway that passes through said joining station, each advance of said first elongated continuous structure being substantially the same distance and being separated in time by a dwell time, said joining means being operative during each dwell time;

first and second rollers forming a nip upstream of said joining station;



means for guiding said second elongated continuous structure along a second process pathway, said second process pathway passing through said nip and said joining station, said nip applying a pressure on the portion of said second elongated continuous structure in frictional contact therewith; and

a torque control device for applying an output torque to said first roller in a direction opposite to the direction of a load torque exerted on said first roller by said second elongated continuous structure as the latter is being pulled toward said joining station by a portion of said advancing first elongated continuous structure disposed upstream of said joining station that has been joined to said second elongated continuous structure, the output torque having a magnitude sufficient to produce a desired tension in that portion of said second elongated continuous structure disposed between said nip and said joining station.

Claim 41 (New): The apparatus as recited in claim 40, wherein the output torque is substantially constant during a work cycle.

Claim 42 (New): The apparatus as recited in claim 40, wherein said first elongated continuous structure comprises a web of packaging film while said second elongated continuous structure comprises a first zipper strip.

Claim 43 (New): The apparatus as recited in claim 40, wherein said torque control device comprises a magnetic particle clutch.

Claim 44 (New): The apparatus as recited in claim 40, wherein said torque control device comprises an input shaft, an output shaft, and means for coupling said output shaft to said input shaft, said coupling means causing said output shaft to slip relative to said input shaft when a load torque on said output shaft exceeds an oppositely directed output torque being

applied to said output shaft.

Claim 45 (New): The apparatus as recited in claim 44, further comprising an accumulator that accumulates portions of said second elongated continuous structure disposed between said nip and said joining station while said first elongated continuous structure is stationary.

Claim 46 (New): The apparatus as recited in claim 42, wherein said first zipper strip is interlocked with a second zipper strip, further comprising an ultrasonic welding assembly that fuses and deforms respective portions of said first and second zipper strips that have passed through said nip.

Claim 47 (New): The apparatus as recited in claim 46, further comprising a slider insertion device for inserting a respective slider on a respective undeformed section of said interlocked first and second zipper strips.

Claim 48 (New): The apparatus as recited in claim 44, further comprising a thermoforming die for thermoforming a respective section of said first elongated continuous structure into a respective pocket before that section is joined to said second elongated continuous structure at said joining station.